REVISION A

Manage SMA Process Verifications

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Date

DOCUMENT HISTORY LOG

Status (Draft/ Baseline/ Revision/ Canceled)	Document Revision	Effective Date	Description
Baseline		January 13, 2000	
Revision	A	April 14, 2000	Editorial corrections to Sections 1 and 2, Section 3.3 definition, Section 4 References, (new numbers) 4.7 through 4.11 and Step 6.01; Deleted Section 4 Reference 4.8; Modified Steps 6.03, 6.04 and 6.05, Appendix A step 4 and modified Appendix B.

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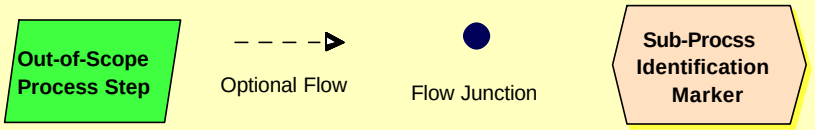
OSMA Staff Member Responsible for this HOWI: QE/Pete Rutledge

OSMA Flowcharting Symbology Used which is in addition to the symbology defined in HCP 1400-1: Document and Data Control



Note: For All OSMA intermediate and final outputs: page numbers, the date, and document owner will be marked on the document.

1. Purpose

The purpose of this Office of Safety and Mission Assurance (OSMA) Headquarters Office Work Instruction (HOWI) is to document the process for conducting Process Verifications (PV). This HOWI also specifies the Quality Records associated with the process.

This document describes the PV methodology by which both Center and Headquarters management are supplied with an evaluation of a Center's SMA organization with regard to:

A) Overall effectiveness and efficiency of the management of the SMA function,

B) Assurance of conformance with NASA policies and directives (including Federal regulations),

C) Conformance of Center SMA organization with its processes as defined in the Annual Operating Agreement (AOA),

D) Effectiveness in meeting customers' SMA requirements to support NASA Strategic Enterprise objectives, programs and projects,

E) Appropriate level and quality of resources, and

F) Identification of issues and concerns that may inhibit the effective implementation of SMA functions.

Reports documenting the results of PV reviews at each Center are provided to the appropriate Strategic Enterprise Associate Administrator (AA), the Center Director, the Center SMA Director and the AA/SMA. These results are also shared with the other Center SMA directors and when appropriate, other Strategic Enterprise AA's.

2. Scope and Applicability

PV reviews are structured around OSMA Safety and Mission Success requirements (Safety, Reliability, Maintainability, and Quality per the OSMA Documentation Tree) and each Center's AOA. The reviews focus on SMA management processes, identifying strengths of the SMA organization and any areas for improvement to accomplishing the goals of the organization; i.e., areas where additional resources and increased attention may be needed. PV reviews also confirm that all SMA functions for which the Center SMA organization has direct responsibility are documented within the AOA, as well as identify any issues to be addressed during follow-on reviews. This HOWI is applicable to OSMA staff members responsible for managing and conducting PVs.

3. Definitions

3.1. AA: Associate Administrator

3.2. AA/SMA: Associate Administrator for Safety and Mission Assurance

3.3. Annual Operating Agreement (AOA): A NASA Center SMA management plan which defines customer requirements, SMA processes, resources required to meet SMA customer requirements, and the metrics defining effectiveness and efficiency of SMA processes for the upcoming year.

3.4. Code QE: Enterprise Safety and Mission Assurance Division

3.5. Code QS: Safety and Risk Management Division

3.6. Customer: The direct recipient of the products, services, functions, and/or outputs of a process.

3.7. Effectiveness: A measure of the ability of the process output to satisfy the customer's requirements or to provide customer satisfaction.

3.8. Efficiency: A measure of the use of resources. An efficient process minimizes the use of resources in meeting the customer requirements.

3.9. Enterprise Agreement: An agreement between OSMA and each Strategic Enterprise defining the roles, responsibilities and services that OSMA will provide each Strategic Enterprise.

3.10. HATS: NASA Headquarters Action Tracking System

3.11. HEDS: Human Exploration and Development of Space

3.12. Insight: Surveillance mode requiring only the monitoring of customer-identified metrics and contracted milestones. Insight is a continuum that can range from low intensity, such as reviewing quarterly reports, to high intensity, such as the customer performing surveys and reviews.

3.13. Mission Assurance Risk Factors: Criteria identifying significant areas of risk that will adversely impact Enterprise operations and missions; as in;… "Mission assurance risk factors, such as high criticality, safety or mission success impact, loss of a national asset or capability, will be used to assess key issues within the Process Verification reviews."

3.14. Oversight: Surveillance mode which is in-line with the supplier's processes. The customer retains and exercises the right to concur or non-concur with the supplier's decisions. Non-concurrence must be resolved before the supplier can proceed. Oversight is a continuum that can range from low-intensity, such as customer concurrence in reviews (e.g. PDR, CDR), to high intensity oversight, in which the customer has day-to-day involvement in the supplier's decision making process (e.g., hardware inspections).

3.15. POC: Point of Contact

3.16. Process Owner: Someone who establishes the policy for a process and/or designs the process being implemented. Organizations or personnel using the process to implement a policy are not the Process Owners.

3.17. PV: Process Verification

3.18. PV Manager: OSMA staff member leading the PV effort.

3.19. PV Team: The support personnel from HQ and other NASA Centers or outside specialists performing the PV.

3.20. Robustness: Ability of a process to remain stable and capable despite the presence of one or more causes of variation. Robustness, in this case, is a measurement of the strength of the SMA functions supporting the Center customers.

3.21. Strategic Enterprise: A NASA business organization. There are four NASA Strategic Enterprises: Aero-Space Technology, Human Exploration and the Development of Space (HEDS), Earth Science, and Space Science.

3.22. Suitability: The quality of being capable of, and appropriate for, satisfying customer requirements.

3.23. Surveillance: The monitoring/tracking and/or verification and analysis of status and/or performance of an entity. Surveillance can be performed in insight, oversight, or a combined mode as determined by a risk-based decision process.

4. Reference Documents

The documents listed in this section are used as reference materials for performing the processes covered by the Quality Management System (QMS). Since all NASA Headquarters Level 1 (QMS Manual) and level 2 (Headquarters Common Processes) documents are applicable to the QMS, they need not be listed in this Section unless specifically referenced in this OSMA HOWI.

4.1. NPD 1000.1: NASA Strategic Plan

4.2. NPG 1000.2: NASA Strategic Management Handbook

4.3. NHB 1101.3: The NASA Organization

4.4. NPD 7120.4: Program/Project Management

4.5. NPG 7120.5: NASA Program and Project Management Processes and Requirements

4.6. NPD 8700.1: NASA Policy for Safety and Mission Assurance

4.7. Office of Safety and Mission Assurance Strategic Plan

4.8. Safety and Mission Assurance for the Human Exploration and Development (HEDS) Enterprise Agreement

4.9. Safety and Mission Assurance for the Aeronautics Enterprise Agreement

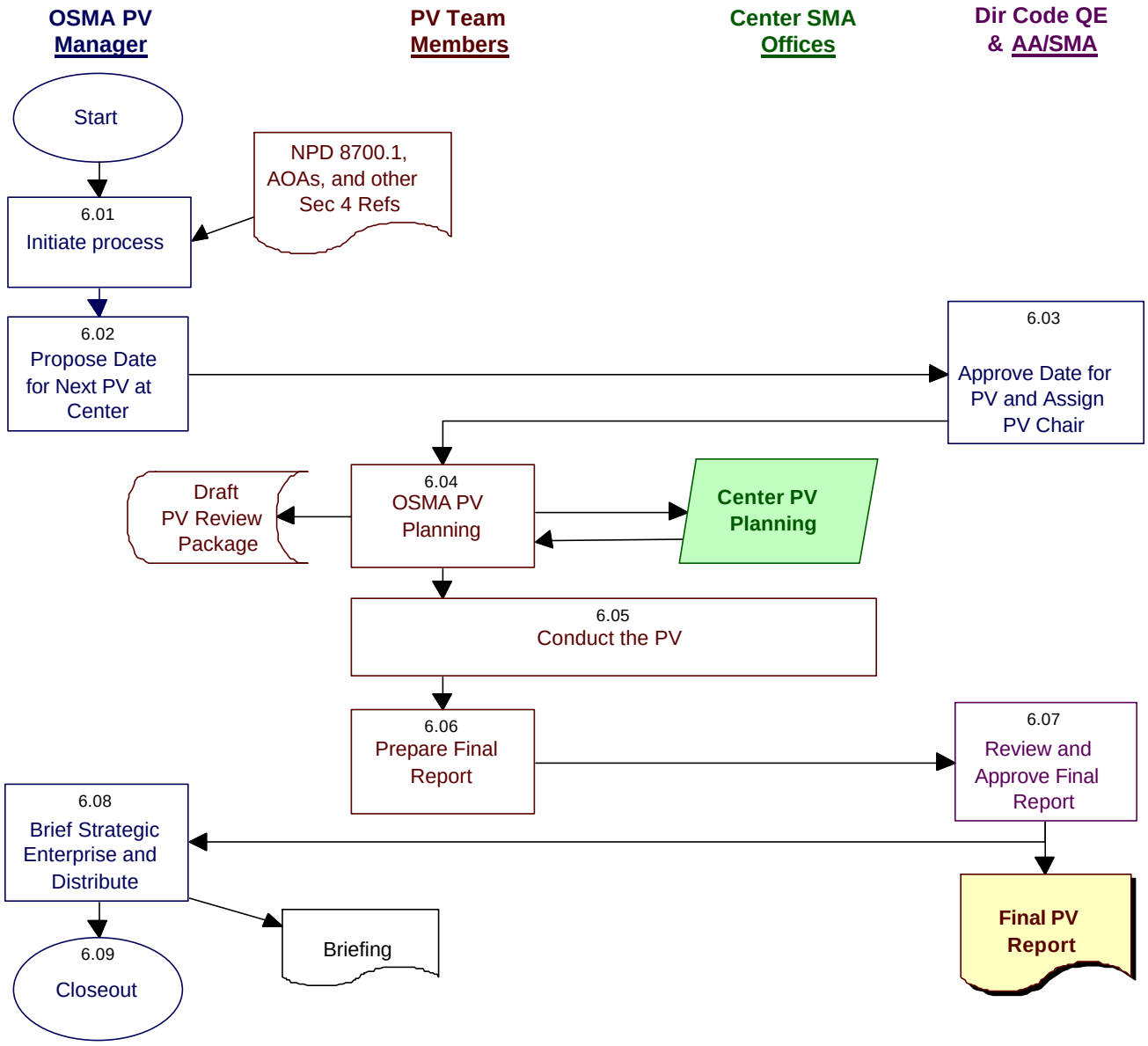
4.10. Safety and Mission Assurance for the Mission to Planet Earth Enterprise Agreement

4.11. Safety and Mission Assurance for the Space Science Enterprise Agreement

4.12. The Annual Operating Agreements for each NASA Center

4.13. Code of Federal Regulation 29 CFR 1960

5. Flowchart


OSMA PV Manager
PV Team Members
Center SMA Offices
Dir Code QE & AA/SMA
Start
NPD 8700.1, AOAs, and other Sec 4 Refs
6.01
Initiate process
6.02
Propose Date for Next PV at Center
6.03
Approve Date for PV and Assign PV Chair
Draft PV Review Package
6.04
OSMA PV Planning
Center PV Planning
6.05
Conduct the PV
6.06
Prepare Final Report
6.07
Review and Approve Final Report
6.08
Brief Strategic Enterprise and Distribute
Briefing
Final PV Report
6.09
Closeout

6. Procedure

Note: The extensive list of references in Section 4 above provides additional guidance on setting up an individual Process Verification.

6.01 PV Manager Initiate Process:

The PV Manager determines that a PV needs to be conducted at a NASA Center/Site. PV reviews are nominally done on a 2-year cycle. However, the need/request for a PV can come from the AA/SMA, Strategic Enterprise AA, Center Director, or Center SMA Director. The target is to respond to a request for a PV within 30 days by establishing a target date for a PV. Specific considerations for conducting the PVs are contained in Appendix B.

6.02 PV Manager Propose Date for Next PV at Center:

The PV Manager proposes a date for the next PV(s) and coordinates date with AA/SMA and the Center SMA Director.

6.03 AA/SMA & Director, Code QE Approve Date for PV and Director, Code QE, Assigns a PV Chair:

The AA/SMA reviews and approves the proposed PV dates. The Director of Codes, QE and QS will determine a PV Chair. Normally, it will be either the Director of QE or QS. The remainder of the PV Team will be selected by the PV Manager and the PV Chair with the Directors of Code QE and Code QS. The PV planning process has begun.

6.04 PV Team OSMA PV Planning:

1. Target: PV minus eight weeks – The PV Chair makes the initial contact with the POC at the Center SMA organization. Pre-visit coordinations are to be started at this time. For further information on pre-visit negotiations see Appendix C.
2. Target: PV minus six weeks - Approximately six weeks prior to review, a letter from the AA/SMA sends a letter to the Center Director indicating the purpose of the visit, identifying the team leaders and members, and establishing the dates of the visit. A template for this letter can be found in Appendix C.
3. Target: PV minus five weeks – Complete selection of the members of the team based on the required expertise needed to evaluate the processes selected for review. Team leads and members are not necessarily restricted to NASA Headquarters organizations. For approximately the next five weeks, the Chair and team members work with the Center POC to refine the areas to be reviewed. During this time the team communicates to the OSMA POC the topics and general questions to be answered.
4. Target: PV minus four weeks - The PV Chair and team members should continue to coordinate with the POC to refine the Review. At least one face-to-face team meeting should be scheduled during this period to ensure that required inputs and issues are being properly addressed.
5. Target: PV minus one week - The PV Chair holds a meeting with all members of the PV team to ensure that preparations are complete and the team is ready to conduct the PV review. The final review package containing the agenda, areas to be addressed, customers to be interviewed, final report outline, Evaluation/Observation Sheet (blank version), and report schedule will be distributed at this meeting.

The Center prepares for the PV visit by supporting the above OSMA planning steps and conducting internal reviews to aid the PV Team visit. The result of this step is the Draft PV Review Package.

6.05 PV Team & Center OSMA Office Conduct the PV:

PV review week - In general, the review begins on Monday morning and finishes on Friday afternoon. After each day's reviews, the team meets and discusses the day's findings. Follow-on reviews may be adjusted as a result of the meeting. This meeting is restricted to Team Members only and minutes are not recorded. After completing Thursday's review, the team reviews the evaluations, and determines which items are to be included in the out-briefing. Narrative portions of the preliminary report can also be started at this time. The out-briefing(s) to the Center Director and other Center Senior Management is normally held on Friday morning. Appendix C contains samples of data recording documents used during the PV.

6.06 PV Team Prepare Final Report:

1. Target: PV plus one week - Submit final written narratives and Evaluation/Observation Sheets to the PV Chair.
2. Target: PV plus two weeks – PV Chair prepares a final report and distributes to team members, Center SMA organization, and OSMA Division Directors for review and comment. Appendix A contains guidance on the contents of the Final Report
3. Target: PV plus three weeks – PV Chair makes final changes to report and distributes to Director, Enterprise Safety and Mission Assurance Division and Director, Safety and Risk Management Division for review and concurrence. Report is then forwarded to the Deputy AA/SMA and the AA/SMA for review, concurrence, and signature.

6.07 AA/SMA Review and Approve Final Report:

AA/SMA reviews and approves the final PV report. The PV Chair incorporates AA/SMA comments in the final PV report before release. The report is filed as a Quality Record.

6.08 PV Chair with PV Manager Brief Strategic Enterprise and Distribute:

The Final Report is distributed within a target of about 30 days of the PV review. The report evaluations will be used as a basis for follow-up visits if needed. A final PV report will be briefed to the Strategic Enterprise responsible for the Center having undergone the PV.

6.09 PV Manager Closeout:

The PV Manager ensures that all Quality Records from the PV are filed and then closes out the process.

7. Quality Records

Record ID	Owner	Location	Media Electronic /hardcopy	Schedule Number & Item Number	Retention & Disposition

Final PV Report	PV Manager	QE Files	Hardcopy	Schedule: 5 Item: 30.B	Close file at end of PV, keep Until Reference Value Ceases or 9 years then destroy

Appendix A: Final Report Contents

1. Table of Contents - This is a single page listing the sections of the report described below.
2. Executive Summary - This section should be no more than three pages in length and contain an overall description of the review and any significant results.
3. Introduction - Describes the purpose and methodology of the PV review. It should also briefly describe the contents of the various sections of the report.
4. Results - Summarizes, in narrative form, what the sub-team(s) accomplished and the significant results documented by each. Subsections should include the evaluation of planning and tracking processes. This section also documents the specific strengths and areas for improvement for the processes reviewed. *Results should include the Section 1 Items A through F as a part of the Report.*
5. Other Issues - Any issues identified during the PV which do not fall directly under the purview of one of the sub-teams should be identified in this section.
6. Attachments - The following items may be included:
    A. OSMA memorandum notifying Center Director of pending PV Review
    B. List of team members and their assignments/responsibilities
    C. Copies of the Evaluation/Observation sheets
    D. Optional: PV agenda
    E. Optional: PV schedule matrix
    F. Optional: In-Briefing charts
    G. Optional: Out-Briefing charts
    H. Lessons learned (if any)

NOTE: All of the above attachments are to be included only in the official file copy of the report. Attachments A, B, and C will be in the report sent to the Center SMA Director. Only attachments A and B will be sent with all reports**.**

Appendix B: Specific Considerations for Conducting Process Verifications (PV)

The OSMA PV Manager and PV Team Members need to:

- Involve all interested and involved OSMA personnel in periodic PV policy and procedures meetings.

- Schedule PV dates at least 6 months ahead of time.
- Provide for early and frequent involvement of applicable OSMA personnel, including group input to the decision(s) on what will be reviewed on a particular PV.
- Facilitate having the right people, with the right expertise, on the PV team.
- Review Center SMA program against (but not be limited to) their AOA.
- Allow enough time for a PV so that an adequate job can be done; if additional time is needed by part of the PV team then additional time/resources should be scheduled.
- Assess safety awareness at Centers.
- Ensure that Center SMA program supports Agency-wide SMA initiatives; e.g., ASI, risk management.
- Ensure that Center SMA personnel are receiving appropriate training and professional development.
- Facilitate the identification of Center SMA organization resource shortfalls.
- Review Center SMA metrics for content and to determine that they exist and are used.
- Include PV chair's review and acceptance/rejection of every finding sheet developed during a PV; this review should ensure that findings are in-scope.
- Tell the Centers all of the areas that were reviewed and found to be OK.
- Provide advocacy for Center SMA director, as appropriate.
- Involve the AA/SMA and/or Deputy AA/SMA, in the Center out-briefings (in person or by telecon or ViTS).
- Provide for early OSMA editorial review of PV reports.
- Include as much parallel processing of draft PV reports in OSMA as feasible.
- Provide written report back to Center within about 30 days from first day back in office from a PV review.
- Integrate PV reports on an Enterprise basis and be presented to the appropriate Enterprise annually.
- Serve as one part of a gap analysis for Enterprise AAs (AOA provides another part).

Appendix C: Other Sample Documents

EVALUATION SHEETS

The evaluation sheets are provided to document the minimum required information to summarize the findings and recommendations from the Process Verification reviews.

The **Date**, **Facility**, and **Team Members** blocks need no explanation.

The Sheet number (found in the upper right hand corner of the Facility Block) system has been kept simple for use in filing these in a computer database. The first two characters denote the Facility (i.e., AR - Ames; DF - Dryden; GS - Goddard; JP - Jet Propulsion Lab.; JS - Johnson; KS - Kennedy; LA - Langley; GR-Glenn (nee: LE – Lewis); MS - Marshall; SS - Stennis), the next three characters denote the SMA activity area (OFA - Facility Assurance; OMA - Mission Assurance; OOA - Operational Assurance; SMA - Safety and Mission Assurance Management), and the last two characters denote the number of the evaluation sheet.

Description of Process:

The description of the process being reviewed should contain a short paragraph covering the purpose/goals of the process **so that anyone reading the evaluation sheets will understand the findings that follow.**

Strengths:

The process strengths can be defined in short paragraphs or listed with sufficient comments to justify why the team members believe these characteristics are strengths. This information should be sufficiently inclusive to advocate possible transition to other NASA Centers.

Areas for Improvement:

This section is used to list those areas of the process that could use improvement. Sufficient detail is needed to support a discussion of the finding with the SMA management.

This section should also include issues that do not represent weaknesses in the way work is being performed, but issues that, if changed, could result in more effective or efficient process management. Examples could be outdated policies or ways of doing business that are still required but add no value in a Better, Faster, Cheaper mode of doing business.

Further Review By:

There are four Blocks to be marked: SMA Internal, meaning the improvement can be managed within the normal control of the Center SMA management; Center, indicating assistance may be required from the Center management; Enterprise, indicating Enterprise or NASA Headquarters resources may be required; and None for no additional assistance is required. These blocks will be filled out at the conclusion of discussion with the Center SMA management. More than one block may be marked and identified for specific areas of improvement. A blank Evaluation Sheet plus examples follow.

PV EVALUATION / OBSERVATION SHEET

DATE OF REVIEW:	FACILITY:

TEAM MEMBERS:

DESCRIPTION OF PROCESS:

STRENGTHS:

AREAS FOR IMPROVEMENT:

FURTHER REVIEW BY: ☐ **SMA INTERNAL** ☐ **CENTER** ☐ **ENTERPRISE** ☐ **NONE**

SAMPLE PV Announcement Letter

TO: Ames Flight Research Center
Attn: 200-1/Director

FROM: Q/Associate Administrator for Safety and Mission Assurance

SUBJECT: Process Verification (PV) Team Visit

A PV team from NASA Headquarters, Office of Safety and Mission Assurance (OSMA), Code Q, and the Office of Life and Microgravity Sciences and Applications (OLMSA), Code U, will visit the Ames Research Center (ARC) July 26-29, 1999. The purpose of this visit is to assess the overall effectiveness and efficiency of the safety and mission assurance (SMA) and environmental health functions conducted by the ARC Safety, Environmental and Mission Assurance (SEMA) Directorate. Code Q, in coordination with Code U, conducts such assessments at all NASA Centers. The PV will focus on assessing the OSMA's implementation/involvement in processes including (but not limited to):

1. Risk management;
2. Software assurance (including software safety);
3. Procurement assurance;
4. Agency Safety Initiative awareness;
5. ARC's ISO certification process;
6. Program and project safety and mission assurance;
7. Environmental health; and
8. Operational safety.

To facilitate the success of this visit, Mr. Warren Hall, Director, SEMA, and his staff are needed to support the coordination of on-site activities and agenda items. Mr. Robert Navarro, as point of contact for the review, will coordinate plans with the PV team. The PV will emphasize the review of agreed-to processes defined in SEMA's FY 1999 Annual Operating Agreement (AOA). In addition, the team may verify compliance with other SMA requirements. Ms. Pamela Richardson, Enterprise Safety and Mission Assurance Division, Code QE, will lead the PV team. The team members and their focus areas are:

___, Code QE, Chair

___, Code QE, Management Review

___, Code QS, Safety Review

The team will conduct the PV in a manner that should minimally impact the ARC staff involved. I will attend the closeout briefing provided for you and your senior staff on Thursday morning, July 29, 1999. Thank you for your support of this important activity that contributes to the continuing success of NASA's safety and mission assurance and environmental health programs.

Frederick D. Gregory